

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listing, of claims in this application.

Listing of the claims:

1. - 6. (Canceled).

7. (Currently Amended) A pickle solution comprising at least one protein, at least one transglutaminase, an ammonium salt in an amount of from 0.001 mol/liter to less than 0.1 mol/liter, and water.

8. - 10. (Canceled).

11. (Previously Presented) The pickle solution of Claim 7, wherein said ammonium salt is selected from the group consisting of ammonium chloride, ammonium carbonate, ammonium hydrogen carbonate, ammonium aluminum sulfate, ammonium iron citrate, ammonium persulfate, ammonium sulfate, diammonium hydrogen phosphate and ammonium dihydrogen phosphate.

12. (Previously Presented) The pickle solution of Claim ~~44~~ 7, wherein said ammonium salt is ammonium chloride.

13. - 15. (Canceled)

16. (Original) The pickle solution of Claim 7, wherein said protein is selected from the group consisting of soybean protein, casein, egg white protein, whey protein, gelatin, collagen and plasma protein.

17. (Currently Amended) A method of making the pickle solution of Claim 7, comprising:

mixing the protein, and from 0.001 mol/liter to less than 0.1 mol/liter ammonium salt in water; and

adding the transglutaminase.

18. (Original) The method of Claim 17, wherein after said adding, the pickle solution is stored for a period of one to four days.

19. (Withdrawn) A method of making a processed meat comprising adding the pickle solution of Claim 7 to a meat.

20. (Withdrawn) The method of Claim 19, wherein said adding comprises immersing the meat into said pickle solution.

21. (Withdrawn) The method of Claim 19, wherein said adding comprises injecting said pickle into said meat.

22. (Withdrawn) A processed meat obtained by the process of Claim 19.

23. (Previously Presented) A method of making the pickle solution of Claim 11, comprising:

mixing the protein, and from 0.001 mol/liter to less than 0.1 mol/liter ammonium salt in water; and

adding the transglutaminase.

24. (Previously Presented) The method of Claim 23, wherein after said adding, the pickle solution is stored for a period of one to four days.

25. (Withdrawn) A method of making a processed meat comprising adding the pickle solution of Claim 11 to a meat.

26. (Withdrawn) The method of Claim 25, wherein said adding comprises immersing the meat into said pickle solution.

27. (Withdrawn) The method of Claim 25, wherein said adding comprises injecting said pickle into said meat.

28. (Withdrawn) A processed meat obtained by the process of Claim 25.

29. (Previously Presented) A method of making the pickle solution of Claim 12, comprising:

mixing the protein, and from 0.001 mol/liter to less than 0.1 mol/liter ammonium salt in water; and adding the transglutaminase.

30. (Previously Presented) The method of Claim 29, wherein after said adding, the pickle solution is stored for a period of one to four days.

31. (Previously Presented) A method of making a processed meat comprising adding the pickle solution of Claim 12 to a meat.

32. (Withdrawn) The method of Claim 31, wherein said adding comprises immersing the meat into said pickle solution.

33. (Withdrawn) The method of Claim 31, wherein said adding comprises injecting said pickle into said meat.

34. (Withdrawn) A processed meat obtained by the process of Claim 31.

35. (Previously Presented) A method of making the pickle solution of Claim 16, comprising:

mixing the protein, and from 0.001 mol/liter to less than 0.1 mol/liter ammonium salt in water; and adding the transglutaminase.

36. (Previously Presented) The method of Claim 35, wherein after said adding, the pickle solution is stored for a period of one to four days.

37. (Withdrawn) A method of making a processed meat comprising adding the pickle solution of Claim 16 to a meat.

38. (Withdrawn) The method of Claim 37, wherein said adding comprises immersing the meat into said pickle solution.

39. (Withdrawn) The method of Claim 37, wherein said adding comprises injecting said pickle into said meat.

40. (Withdrawn) A processed meat obtained by the process of Claim 37.

REMARKS

Claims 7, 11, 12 and 16-40 are active in this application. Support for the amendment to Claim 7 is found on page 6, lines 21-22. No new matter is added

Applicants again request that the method claims be rejoined upon finding that the elected product claims have been allowed (MPEP § 821.04).

The claims are directed to a pickle solution which contains at least one protein, at least one transglutaminase, an ammonium salt in an amount of from 0.001 mol/liter to less than 0.1 mol/liter and water. This pickle solution is not described in the prior art for the following reasons.

Susa and Soeda do not describe ammonium salt. Nowsad describe that amine salts such as ammonium salts in a concentration of 0.1 to 1.0 molar inhibit transglutaminase (see page 1017, column 1, first paragraph). In addition, Nowsad describe that "the breaking force and breaking strain showed a tendency of gradual decrease with the increase of the mole fraction of ammonium chloride and various amine salts added . . ." (Page 1018, column 2, , 4th paragraph, referencing Figure 1). However, the cited references fail to describe selecting a specific range of ammonium salt, i.e., 0.01 mol/liter to less than 0.1 mol/liter. Noswad simply does not describe any deviance from the disclosed range of ammonium salts nor provide any reason to do so.

As a result, the combination of prior art does not suggest that the claimed range of ammonium salt would be expected to have advantages for the pickle solution in which the salt had been added.

As described on page 6, lines 16-22, "When ammonium salt is used as the suppressing compound, if the concentration exceeds 0.2 mol/liter, the requisite TGase activity in the meat product is not attained. Therefore, when ammonium salts are used as the suppressing compound, the ammonium salt concentration is preferably below 0.1 mol/liter."

This statement is supported by the data shown in, for example, Tables 1-3 (see pages 10-12). Unfortunately, it appears the Office has misunderstood these data (referring to the discussion on page 3 of the Office Action. Therefore, the data are again reproduced and discussed below.

Table 1. Pickle solution

Ingredients	Concentration (%)
Soy bean protein for ham	4
Sodium casein	1.5
Egg white	2
Whey protein	1.5
Sodium chloride	4
Sodium nitrite	0.03
Polymerized phosphate (salt)	0.6
Ascorbic acid	0.2
Dextrin	7.5
Sugar	0.7
Glutamate Na	0.3
Water	77.67
Total	100

Table 2. TGase and TGase suppressing compounds in pickle solutions

Experimental groups	TGase (U/liter)	NH ₄ Cl (mol/liter)	Anserine (mol/liter)	Carnosine (mol/liter)
(1)	0	0	-	-
(2)	50	0	-	-
(3)	100	0	-	-
(4)	150	0	-	-
(5)	200	0	-	-
(6)	200	0.002	-	-
(7)	200	0.02	-	-
(8)	200	0.2	-	-
(9)	200	-	0.2	-
(10)	200	-	-	0.2

Table 3. Pickle viscosity, physical properties and quality assessment of the model ham

Experimental groups	Pickle viscosity (cP) at 5°C				Breaking strength of the model ham (gram)	Quality assessment of the model ham*
	Immediately after preparation	one day later	2 days later	3 days later		
(1)	29	30	32	34	537	X
(2)	31	35	41	83	599	X
(3)	30	94	125	444	680	Δ
(4)	32	74	153	808	733	○
(5)	27	114	317	3855	773	○
(6)	26	52	110	312	770	○
(7)	31	44	66	95	752	○
(8)	30	31	36	45	686	Δ
(9)	31	41	58	87	722	○
(10)	31	42	56	90	734	○

*: Effect of the TGase on firmness of the ham

X : insufficient;
Δ : slightly insufficient; and
○ : sufficient.

The pickle solution is shown in Table 1 and the amounts of transglutaminase (Tgase) and ammonium chloride (NH₄CL) added to the pickle solution is shown in Table 2. This pickle solution was then added to meat to produce a ham (see page 11) and the quality of the ham was assessed, the results of which are presented in Table 3.

The data show that when the ammonium salt is in an amount of 0.2 (experimental group (8)) the breaking strength of the model ham and quality assessment of the model ham were significantly lower compared to ham prepared with pickle solutions with ammonium salt lower than 0.1 mol/liter, i.e., 0.02 and 0.002 (see experimental groups 6 and 7).

Contrary to the Office's interpretation of these data, the data between Groups 4 and 5 relative to Groups 6 and 7 **do not** support a conclusion that the results are substantially

equivalent (referring to the discussion on page 3 of the Office Action). Note that no ammonium salt was added to the solution of Groups (4) and (5) (see Table 2 reproduced above). The absence of ammonium salt in these two groups yielded a pickle solution with significantly high viscosities, particular in comparison to the viscosity of the pickle solutions in Groups (6) and (7) (compare pickle viscosities in Table 3 reproduced above). As discussed on page 2, lines 22-24 of the specification: “This increase in viscosity makes subsequent use of the pickle difficult and if the method of producing the meat involves injection, makes the procedure almost impossible to conduct.”

In light of the above, the present claims would not have been obvious in view of Susa or Soeda in view of Nowasad. Therefore, withdrawal of the rejection under 35 U.S.C. § 103(a) is requested.

Applicants also note that in the Advisory Action, the Examiner has indicated that that Claims 23, 29, and 35 raise a new issue under 35 U.S.C. §112 because these claims still recite “to 0.1 mol/liter.” Accordingly, the Examiner states that these claims do not further limit the claims from which they depend. In the amendment presented herein, Applicants have amended Claims 23, 29, and 35 to recite “to less than 0.1 mol/liter.” Therefore, it is believed that this amendment obviates any new rejection under 35 U.S.C. §112.

Applicants submit that the present application is now in condition for allowance. Early notification of such action is earnestly solicited.

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